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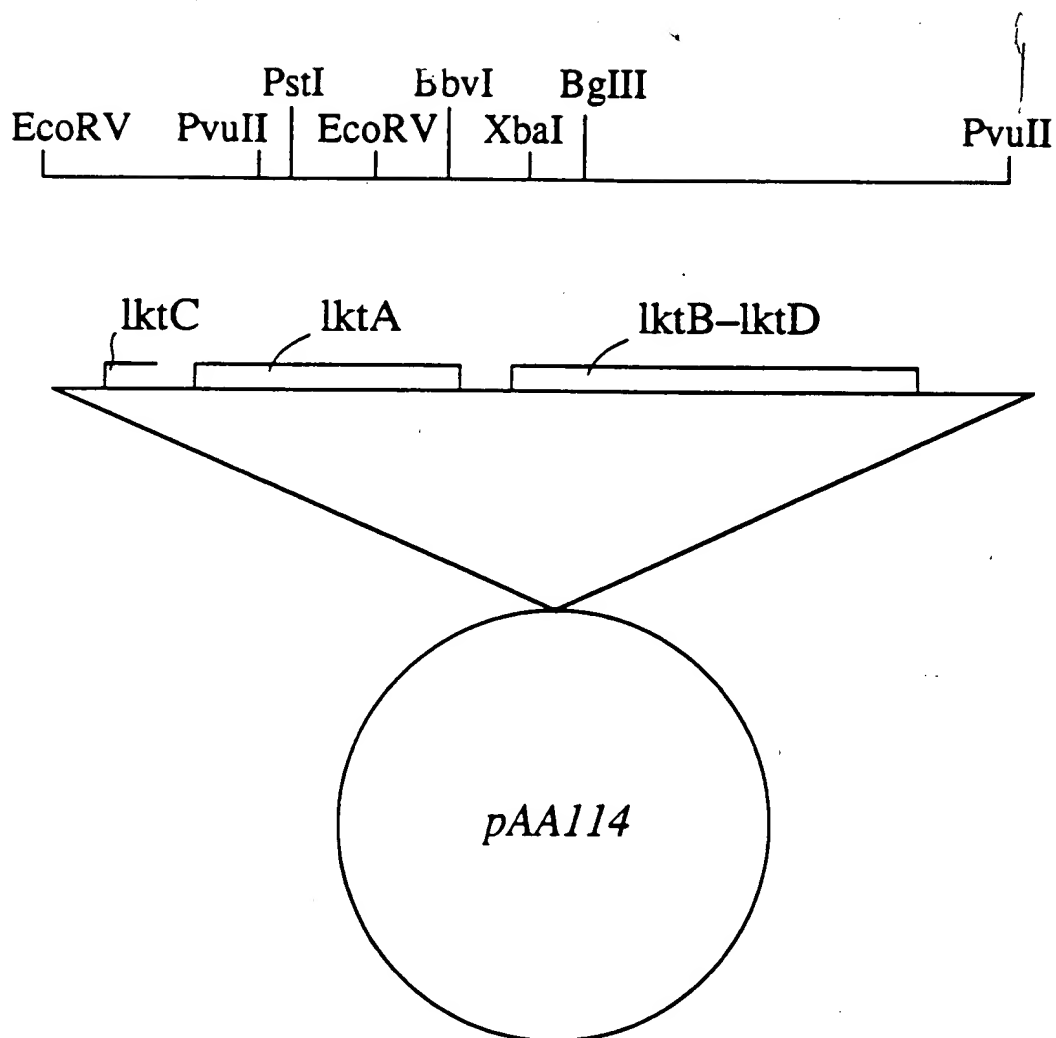


Figure 1

08976566-11497
"9959/680"

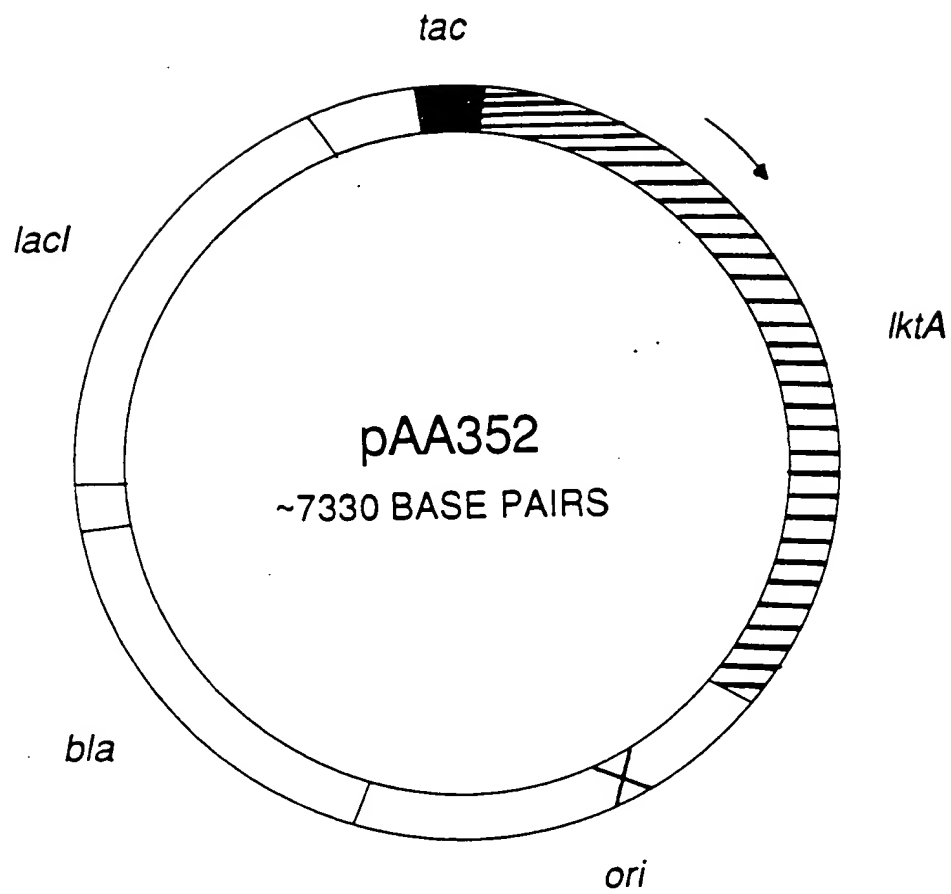


Figure 2

Figure 3-6

1540	1550	1560	1570	1580	1590	1600	1610	1620
CCA TTA TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT								
GGT AAT AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA								
Pro Leu Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Glu Thr 6ly Lys Tyr Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asn								
RECOMBINANT LEUKOTOXIN PEPTIDE								
1630	1640	1650	1660	1670	1680	1690	1700	1710
AGC TGS AAA ATT ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA								
TGC ACC TTT TAA TGT CTA CCA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT								
Ser Trp Lys Ile Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Glu Arg Ile 6ly Ile Glu Leu Asp Asn Ala 6ly								
RECOMBINANT LEUKOTOXIN PEPTIDE								
1720	1730	1740	1750	1760	1770	1780	1790	1800
AAT GTA ACT AAA ACC AAA GAA ACA AAA ATT ATT GGC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT GTT GGT TCT GGT ACG ACG GAA ATT								
TTA CAT TGA TTT TGG TTT CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA CAA CCA AGA CCA TGC TGC CTT TAA								
Asn Val Thr Lys Thr Lys Glu Thr Lys Ile Ile Ala Lys Leu 6ly Glu 6ly Asp Asp Val Phe Val 6ly Ser Gly Thr Thr Glu Ile								
RECOMBINANT LEUKOTOXIN PEPTIDE								
1810	1820	1830	1840	1850	1860	1870	1880	1890
GAT GGC GGT GAA GGT TAC GAC CGA GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC AAA GAG ACC GAG CAA GGT								
CTA CCG CCA CTT CCA ATG CTG GCT CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG TTT CTC TGG CTC GTT CCA								
Asp Gly Gly Glu Tyr Asp Arg Val His Tyr Ser Arg 6ly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr Lys 6ly Thr Glu 6ly								
RECOMBINANT LEUKOTOXIN PEPTIDE								

Figure 3-8

2170	2180	2190	2200	2210	2220	2230	2240	2250
GAC C6C TTA TTT GGT AAA GGC GAT ATT CTC GAT GGT GGA AAT GGT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA								
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT								
Asp Arg Leu Phe Gly Lys Gly Lys Asp Asp Ile Leu Asp Asp Ile Leu Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu>								
RECOMBINANT LEUKOTOXIN PEPTIDE								
2260	2270	2280	2290	2300	2310	2320	2330	2340
CAC GGT GGC AAG GGC GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT ATT ACC GAT ICT GAC GGC AAT GAT AAA TTA TCA								
GTG CCA CCG TIC CCG CTA CTA TAA AAG CAA GIG GCA TTT CCG CTA CCA CCA TTA CTA TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT								
His Gly Gly Lys Asp Asp Ile Phe Val His Arg Lys Gly Asp Asp Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser>								
RECOMBINANT LEUKOTOXIN PEPTIDE								
2350	2360	2370	2380	2390	2400	2410	2420	2430
TTC ICT GAT TCG AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC ACG AAT AGC AAA AAA GAG AAA GIG ACC ATT								
AAG A6A CTA AGC TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA								
Phe Ser Asp Ser Asn Leu Lys Asp Leu Thr Phe Phe Gly Lys Val Lys His Asn Leu Val Ile Thr Asn Ser Lys Lys Glu Lys Val Thr Ile>								
RECOMBINANT LEUKOTOXIN PEPTIDE								
2440	2450	2460	2470	2480	2490	2500	2510	2520
CAA AAC TGG TTC CGA GAG GCT GAT TTT GCT AAA GAA GIG CCT AAT TAT AAA GCA ACT AAA GAT GAG AAA ATC GAA GAA ATC GGT CAA								
GTT TTG ACC AAG GCT CTC CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC TTT TAG CTT CTT TAG TAG CCA GTT								
Gln Asn Trp Phe Arg Glu Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Lys Ala Thr Lys Asp Glu Lys Ile Glu Glu Ile Ile Gly Gln>								
RECOMBINANT LEUKOTOXIN PEPTIDE								

Figure 3-9

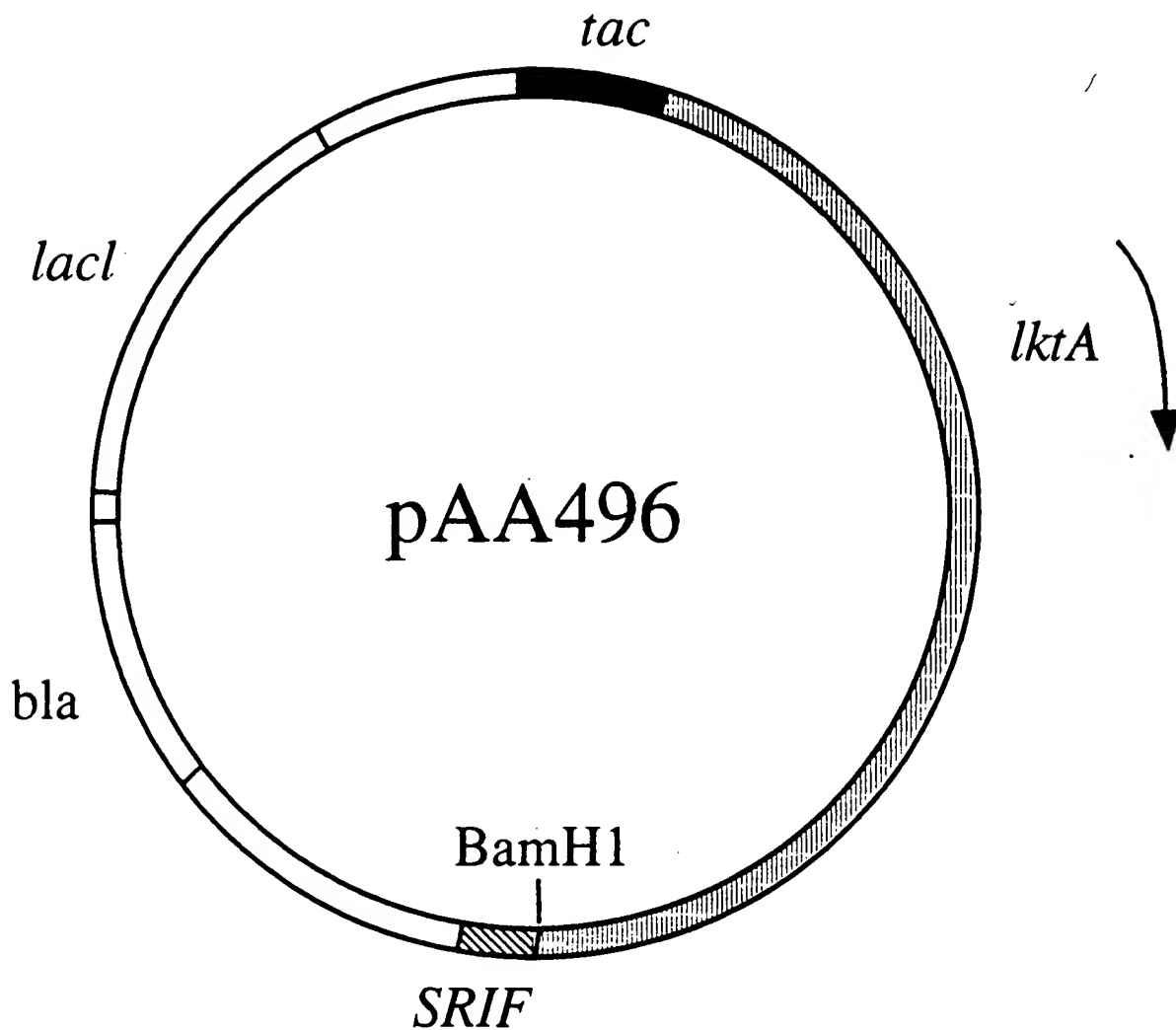
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SRIF-1: 5'-GATCGAGCTCTCTCTGCGGCTGCAGAAACTTCTCTCGGAAAACCTTCACCCAGCTGCTAGG-3'
 SRIF-2: 3'-GTGGAGAGAGCGGCGCGAGGTTTTTGAAGAGAACCTTTTGGAGTGGTGGACGATCCCTAG-5'

GNRH-1: 5'-GATCTCAGCATTTGGAGCTACCGGCTCGGCTCGGCTGCTAG-3'
 GNRH-2: 3'-AGTGGTAACCTCGATCGGCGAGCGGCGAGCGGCTGCTAG-5'

VP4-1: 5'-GATCTTGCAACATTTGTGCTGTGAGCATTTGTGAGCGCGGCAACATTTGTGTPACACCGGCGGCAACCTTACCAAGACATTTGTGTAG-3'
 VP4-2: 3'-AACGTTGTAAACAAGGACATCTCGTAAACACTCGGCGTTGTAAACATTTGGGCGGCGGTTGAATTTGGTTCGTACACATCTCTAG-5'

Figure 4



tac = hybrid *trp::lac* promoter from *E. coli*
bla = beta lactamase gene (ampicillin resistance)
lktA = *Pasteurella haemolytica* structural gene
SRIF = *SRIF* structural gene
lacI = *E. coli* *lac* operon repressor

Figure 5

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      10      20      30      40
      *      *      *      *
ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      50      60      70      80      90
      *      *      *      *      *
ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      100     110     120     130     140
      *      *      *      *      *
AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      150     160     170     180     190
      *      *      *      *      *
GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
CAT GTT TCT CTT CTT GCG TTA TTA TAA CGT TGT CGA GTT TGG TCA AAT
Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      200     210     220     230     240
      *      *      *      *      *
GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-1

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      250      260      270      280
      *      *      *      *
TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

290      300      310      320      330
      *      *      *      *      *
GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

340      350      360      370      380
      *      *      *      *      *
ACT GTA TTA TCT GGC ATT CAA TCT ATT TTA GGC TCA GTA TTG GCT GGA
TGA CAT AAT AGA CCG TAA GTT AGA TAA AAT CCG AGT CAT AAC CGA CCT
Thr Val Leu Ser Gly Ile Gln Ser Ile Leu Gly Ser Val Leu Ala Gly>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

390      400      410      420      430
      *      *      *      *      *
ATG GAT TTA GAT GAG GCC TTA CAG AAT AAC AGC AAC CAA CAT GCT CTT
TAC CTA AAT CTA CTC CGG AAT GTC TTA TTG TCG TTG GTT GTA CGA GAA
Met Asp Leu Asp Glu Ala Leu Gln Asn Asn Ser Asn Gln His Ala Leu>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

440      450      460      470      480
      *      *      *      *      *
GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

490      500      510      520
      *      *      *      *
AAT TCA GTA AAA ACA CTT GAC GAA TTT GGT GAG CAA ATT AGT CAA TTT
TTA AGT CAT TTT TGT GAA CTG CTT AAA CCA CTC GTT TAA TCA GTT AAA
Asn Ser Val Lys Thr Leu Asp Glu Phe Gly Glu Gln Ile Ser Gln Phe>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-2

530 540 550 560 570
 * * * * *
 GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
 CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
 Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

580 590 600 610 620
 * * * * *
 CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
 GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
 Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

630 640 650 660 670
 * * * * *
 ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
 TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
 Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

680 690 700 710 720
 * * * * *
 AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
 TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
 Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

730 740 750 760
 * * * *
 AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
 TTG GTT CAA CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
 Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

770 780 790 800 810
 * * * * *
 GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
 CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
 Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

820 830 840 850 860
 * * * * *
 TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
 AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
 Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
 ___a___a___RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a___a___a___>

Figure 6-3


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      870          880          890          900          910
      *          *          *          *          *
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC
CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG
Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      920          930          940          950          960
      *          *          *          *          *
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA
CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT
Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      970          980          990          1000
      *          *          *          *          *
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT
ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA
Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

1010          1020          1030          1040          1050
      *          *          *          *          *
ACC GCA TTG GCC GCT ATT GCT GGT GGT GTG TCT GCT GCT GCA GCC GGC
TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CCG
Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Gly>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      1060          1070          1080          1090          1100
      *          *          *          *          *
TCG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT
AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA
Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      1110          1120          1130          1140          1150
      *          *          *          *          *
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC
CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG
Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

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Figure 6-4

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      1160      1170      1180      1190      1200
      *      *      *      *      *
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT
CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA
Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      1210      1220      1230      1240
      *      *      *      *      *
CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1250      1260      1270      1280      1290
      *      *      *      *      *
AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      1300      1310      1320      1330      1340
      *      *      *      *      *
CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      1350      1360      1370      1380      1390
      *      *      *      *      *
ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      1400      1410      1420      1430      1440
      *      *      *      *      *
GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      1450      1460      1470      1480
      *      *      *      *      *
GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Il Asp Val Ser>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-5

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1490          1500          1510          1520          1530
  *          *          *          *          *
AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA
TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT
Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1540          1550          1560          1570          1580
  *          *          *          *          *
TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT
AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA
Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1590          1600          1610          1620          1630
  *          *          *          *          *
GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT
CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA
Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1640          1650          1660          1670          1680
  *          *          *          *          *
ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG
TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC
Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1690          1700          1710          1720
  *          *          *          *          *
CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA
GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT
Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1730          1740          1750          1760          1770
  *          *          *          *          *
GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT
CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA
Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-6

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1780      1790      1800      1810      1820
  *      *      *      *      *
GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA
CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT
Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Gly Tyr Asp Arg>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1830      1840      1850      1860      1870
  *      *      *      *      *
GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC
CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG
Val His Tyr Ser Arg Gly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1880      1890      1900      1910      1920
  *      *      *      *      *
AAA GAG ACC GAG CAA GGT AGT TAT ACC GTA AAT CGT TTC GTA GAA ACC
TTT CTC TGG CTC GTT CCA TCA ATA TGG CAT TTA GCA AAG CAT CTT TGG
Lys Glu Thr Glu Gln Gly Ser Tyr Thr Val Asn Arg Phe Val Glu Thr>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1930      1940      1950      1960
  *      *      *      *      *
GGT AAA GCA CTA CAC GAA GTG ACT TCA ACC CAT ACC GCA TTA GTG GGC
CCA TTT CGT GAT GTG CTT CAC TGA AGT TGG GTA TGG CGT AAT CAC CCG
Gly Lys Ala Leu His Glu Val Thr Ser Thr His Thr Ala Leu Val Gly>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

1970      1980      1990      2000      2010
  *      *      *      *      *
AAC CGT GAA GAA AAA ATA GAA TAT CGT CAT AGC AAT AAC CAG CAC CAT
TTG GCA CTT CTT TTT TAT CTT ATA GCA GTA TCG TTA TTG GTC GTG GTA
Asn Arg Glu Glu Lys Ile Glu Tyr Arg His Ser Asn Asn Gln His His>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

2020      2030      2040      2050      2060
  *      *      *      *      *
GCC GGT TAT TAC ACC AAA GAT ACC TTG AAA GCT GTT GAA GAA ATT ATC
CGG CCA ATA ATG TGG TTT CTA TGG AAC TTT CGA CAA CTT CTT TAA TAG
Ala Gly Tyr Tyr Thr Lys Asp Thr Leu Lys Ala Val Glu Glu Ile Ile>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

2070      2080      2090      2100      2110
  *      *      *      *      *
GGT ACA TCA CAT AAC GAT ATC TTT AAA GGT AGT AAG TTC AAT GAT GCC
CCA TGT AGT GTA TTG CTA TAG AAA TTT CCA TCA TTC AAG TTA CTA CGG
Gly Thr Ser His Asn Asp Ile Phe Lys Gly Ser Lys Phe Asn Asp Ala>
__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-7

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      2120      2130      2140      2150      2160
*      *      *      *      *      *      *
TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      2170      2180      2190      2200
*      *      *      *      *      *      *
GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

2210      2220      2230      2240      2250
*      *      *      *      *      *      *
GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
Gly Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu His Gly>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      2260      2270      2280      2290      2300
*      *      *      *      *      *      *
GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      2310      2320      2330      2340      2350
*      *      *      *      *      *      *
ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

      2360      2370      2380      2390      2400
*      *      *      *      *      *      *
AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_a__a__a__>

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Figure 6-8

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      2410      2420      2430      2440
      *      *      *      *      *      *      *      *
ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Ph Arg Glu>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

2450      2460      2470      2480      2490
      *      *      *      *      *      *      *      *
GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG
CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC
Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      2500      2510      2520      2530      2540
      *      *      *      *      *      *      *      *
AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG
TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC
Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      2550      2560      2570      2580      2590
      *      *      *      *      *      *      *      *
CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT
GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA
Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

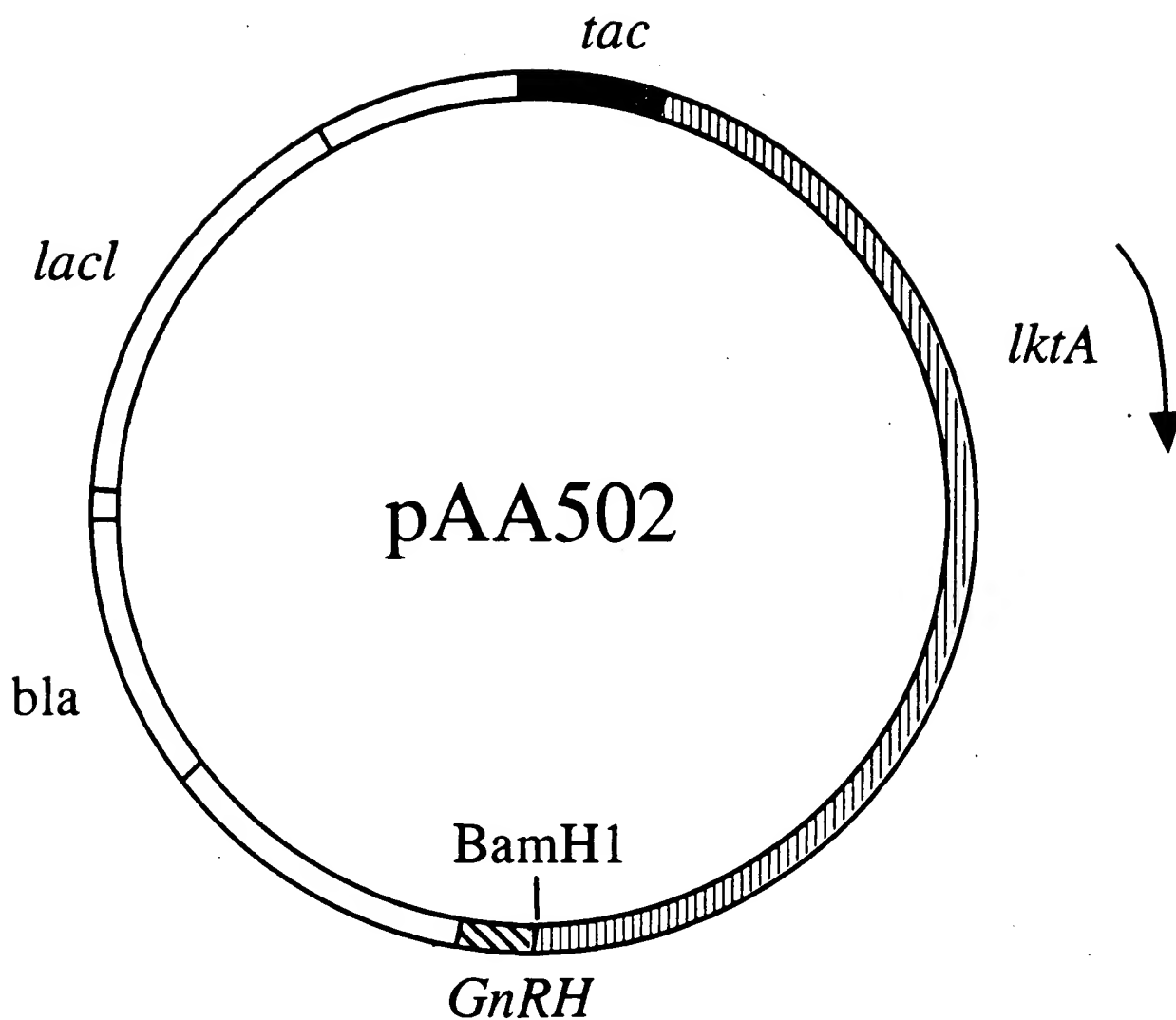
      2600      2610      2620      2630      2640
      *      *      *      *      *      *      *      *
GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA
CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT
Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

      2650      2660      2670      2680
      *      *      *      *      *      *      *      *
AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT
TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA
Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

2690      2700      2710      2720      2730
      *      *      *      *      *      *      *      *
ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG
TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC
Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met>
__a__a__a__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__a__a__a__>

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Figure 6-9



tac = hybrid *trp::lac* promoter from *E. coli*
bla = beta lactamase gene (ampicillin resistance)
lktA = *Pasteurella haemolytica* structural gene
GnRH = GnRH gene
lacI = *E. coli lac* operon repressor

Figure 7


```

      10      20      30      40
      *      *      *      *      *      *      *      *
ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

50      60      70      80      90
      *      *      *      *      *      *      *      *
ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

100     110     120     130     140
      *      *      *      *      *      *      *      *
AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

150     160     170     180     190
      *      *      *      *      *      *      *      *
GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
CAT GTT TCT CTT CTT GCG TTA TTA TAA CGT TGT CGA GTT TGG TCA AAT
Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

200     210     220     230     240
      *      *      *      *      *      *      *      *
GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

```

Figure 8-1

```

      250      260      270      280
      *      *      *      *      *      *      *      *
TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

290      300      310      320      330
      *      *      *      *      *      *      *      *
GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

340      350      360      370      380
      *      *      *      *      *      *      *      *
ACT GTA TTA TCT GGC ATT CAA TCT ATT TTA GGC TCA GTA TTG GCT GGA
TGA CAT AAT AGA CCG TAA GTT AGA TAA AAT CCG AGT CAT AAC GCA CCT
Thr Val Leu Ser Gly Ile Gln Ser Ile Leu Gly Ser Val Leu Ala Gly>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

390      400      410      420      430
      *      *      *      *      *      *      *      *
ATG GAT TTA GAT GAG GCC TTA CAG AAT AAC AGC AAC CAA CAT GCT CTT
TAC CTA AAT CTA CTC CGG AAT GTC TTA TTG TCG TTG GTT GTA CGA GAA
Met Asp Leu Asp Glu Ala Leu Gln Asn Asn Ser Asn Gln His Ala Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

440      450      460      470      480
      *      *      *      *      *      *      *      *
GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

490      500      510      520
      *      *      *      *      *      *      *      *
AAT TCA GTA AAA ACA CTT GAC GAA TTN -GT GAG CAA ATT AGT CAA TTT
TTA AGT CAT TTT TGT GAA CTG CTT AAN -CA CTC GTT TAA TCA GTT AAA
Asn Ser Val Lys Thr Leu Asp Glu Xxx Cys Glu Gln Ile Ser Gln Phe>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

530      540      550      560      570
      *      *      *      *      *      *      *      *
GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]__b__b__b__>

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Figure 8-2

580 590 600 610 620
 * * * * *
 CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
 GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
 Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

630 640 650 660 670
 * * * * *
 ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
 TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
 Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

680 690 700 710 720
 * * * * *
 AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
 TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
 Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

730 740 750 760
 * * * * *
 AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
 TTG GTT CAA CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
 Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

770 780 790 800 810
 * * * * *
 GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
 CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
 Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

820 830 840 850 860
 * * * * *
 TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
 AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
 Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

Figure 8-3

00976566-112497

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      870          880          890          900          910
      *          *          *          *          *
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC
CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG
Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      920          930          940          950          960
      *          *          *          *          *
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA
CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT
Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      970          980          990          1000
      *          *          *          *          *
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT
ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA
Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1010          1020          1030          1040          1050
      *          *          *          *          *
ACC GCA TTG GCC GCT ATT GCT GGT GGT GTG TCT GCT GCT GCA GCC GGC
TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CCG
Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Ala Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1060          1070          1080          1090          1100
      *          *          *          *          *
TCG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT
AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA
Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1110          1120          1130          1140          1150
      *          *          *          *          *
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC
CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG
Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1160          1170          1180          1190          1200
      *          *          *          *          *
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT
CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA
Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 8-4

1210 1220 1230 1240
 * * * * *
 CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
 GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
 His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1250 1260 1270 1280 1290
 * * * * *
 AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
 TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
 Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1300 1310 1320 1330 1340
 * * * * *
 CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
 GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
 Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1350 1360 1370 1380 1390
 * * * * *
 ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
 TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
 Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1400 1410 1420 1430 1440
 * * * * *
 GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
 CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
 Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1450 1460 1470 1480
 * * * *
 GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
 CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
 Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Ile Asp Val Ser>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

Figure 8-5

00976566 "112497"

1490 1500 1510 1520 1530
 * * * * * * *
 AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA
 TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT
 Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1540 1550 1560 1570 1580
 * * * * * * *
 TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT
 AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA
 Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1590 1600 1610 1620 1630
 * * * * * * *
 GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT
 CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA
 Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1640 1650 1660 1670 1680
 * * * * * * *
 ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG
 TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC
 Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1690 1700 1710 1720
 * * * * * * *
 CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA
 GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT
 Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1730 1740 1750 1760 1770
 * * * * * * *
 GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT
 CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA
 Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

1780 1790 1800 1810 1820
 * * * * * * *
 GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA
 CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT
 Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Gly Tyr Asp Arg>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

Figure 8-6

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      1830      1840      1850      1860      1870
      *      *      *      *      *      *      *      *
GTT CAC TAT AGC CGT GGA AAC TAT GGT GCT TTA ACT ATT GAT GCA ACC
CAA GTG ATA TCG GCA CCT TTG ATA CCA CGA AAT TGA TAA CTA CGT TGG
Val His Tyr Ser Arg Gly Asn Tyr Gly Ala Leu Thr Ile Asp Ala Thr>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      1880      1890      1900      1910      1920
      *      *      *      *      *      *      *      *
AAA GAG ACC GAG CAA GGT AGT TAT ACC GTA AAT CGT TTC GTA GAA ACC
TTT CTC TGG CTC GTT CCA TCA ATA TGG CAT TTA GCA AAG CAT CTT TGG
Lys Glu Thr Glu Gln Gly Ser Tyr Thr Val Asn Arg Phe Val Glu Thr>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      1930      1940      1950      1960
      *      *      *      *      *      *      *      *
GGT AAA GCA CTA CAC GAA GTG ACT TCA ACC CAT ACC GCA TTA GTG GGC
CCA TTT CGT GAT GTG CTT CAC TGA AGT TGG GTA TGG CGT AAT CAC CCG
Gly Lys Ala Leu His Glu Val Thr Ser Thr His Thr Ala Leu Val Gly>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1970      1980      1990      2000      2010
      *      *      *      *      *      *      *      *
AAC CGT GAA GAA AAA ATA GAA TAT CGT CAT AGC AAT AAC CAG CAC CAT
TTG GCA CTT CTT TTT TAT CTT ATA GCA GTA TCG TTA TTG GTC GTG GTA
Asn Arg Glu Glu Lys Ile Glu Tyr Arg His Ser Asn Asn Gln His His>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2020      2030      2040      2050      2060
      *      *      *      *      *      *      *      *
GCC GGT TAT TAC ACC AAA GAT ACC TTG AAA GCT GTT GAA GAA ATT ATC
CGG CCA ATA ATG TGG TTT CTA TGG AAC TTT CGA CAA CTT CTT TAA TAG
Ala Gly Tyr Tyr Thr Lys Asp Thr Leu Lys Ala Val Glu Glu Ile Ile>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2070      2080      2090      2100      2110
      *      *      *      *      *      *      *      *
GGT ACA TCA CAT AAC GAT ATC TTT AAA GGT AGT AAG TTC AAT GAT GCC
CCA TGT AGT GTA TTG CTA TAG AAA TTT CCA TCA TTC AAG TTA CTA CGG
Gly Thr Ser His Asn Asp Ile Phe Lys Gly Ser Lys Phe Asn Asp Ala>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 8-7

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      2120      2130      2140      2150      2160
      *      *      *      *      *      *
TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2170      2180      2190      2200
      *      *      *      *      *      *
GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2210      2220      2230      2240      2250
      *      *      *      *      *      *
GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
Gly Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu His Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2260      2270      2280      2290      2300
      *      *      *      *      *      *
GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2310      2320      2330      2340      2350
      *      *      *      *      *      *
ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2360      2370      2380      2390      2400
      *      *      *      *      *      *
AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2410      2420      2430      2440
      *      *      *      *      *      *
ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Phe Arg Glu>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 8-8

2450 2460 2470 2480 2490
 * * * * * * *
 GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG
 CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC
 Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

2500 2510 2520 2530 2540
 * * * * * *
 AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG
 TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC
 Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

2550 2560 2570 2580 2590
 * * * * * *
 CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT
 GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA
 Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

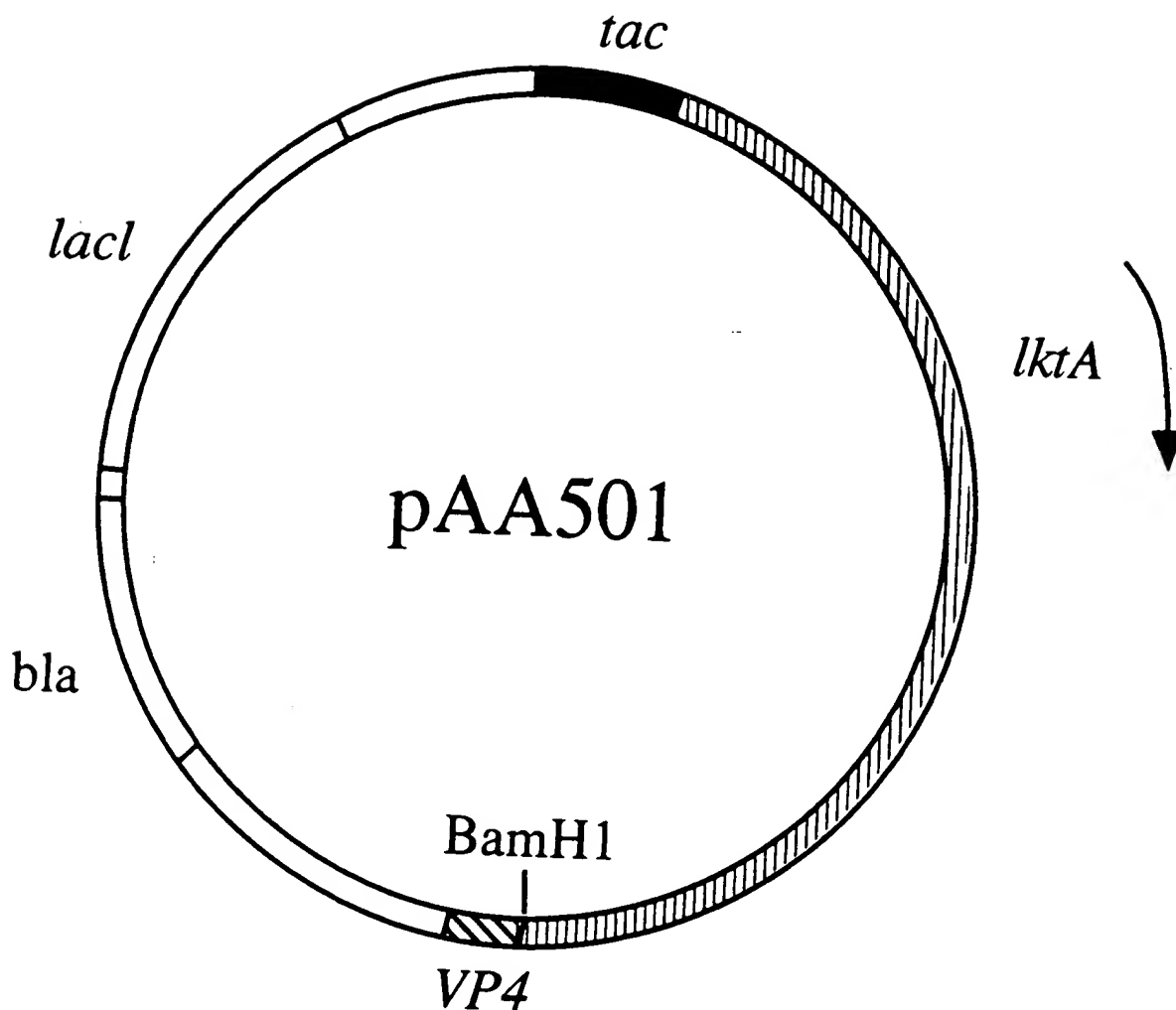
2600 2610 2620 2630 2640
 * * * * * *
 GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA
 CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT
 Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

2650 2660 2670 2680
 * * * * * *
 AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT
 TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA
 Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

2690 2700 2710 2720 2730
 * * * * * *
 ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG
 TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC
 Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

Figure 8-9

08976566 . 112497



tac = hybrid *trp::lac* promoter from *E. coli*
bla = beta lactamase gene (ampicillin resistance)
lktA = *Pasteurella haemolytica* structural gene
VP4 = Bovine rotavirus VP4(232 - 255) gene
lacI = *E. coli* lac operon repressor

Figure 9

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      10      20      30      40
      *      *      *      *      *
ATG GCT ACT GTT ATA GAT CTA AGC TTC CCA AAA ACT GGG GCA AAA AAA
TAC CGA TGA CAA TAT CTA GAT TCG AAG GGT TTT TGA CCC CGT TTT TTT
Met Ala Thr Val Ile Asp Leu Ser Phe Pro Lys Thr Gly Ala Lys Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

50      60      70      80      90
      *      *      *      *      *
ATT ATC CTC TAT ATT CCC CAA AAT TAC CAA TAT GAT ACT GAA CAA GGT
TAA TAG GAG ATA TAA GGG GTT TTA ATG GTT ATA CTA TGA CTT GTT CCA
Ile Ile Leu Tyr Ile Pro Gln Asn Tyr Gln Tyr Asp Thr Glu Gln Gly>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

100     110     120     130     140
      *      *      *      *      *
AAT GGT TTA CAG GAT TTA GTC AAA GCG GCC GAA GAG TTG GGG ATT GAG
TTA CCA AAT GTC CTA AAT CAG TTT CGC CGG CTT CTC AAC CCC TAA CTC
Asn Gly Leu Gln Asp Leu Val Lys Ala Ala Glu Glu Leu Gly Ile Glu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

150     160     170     180     190
      *      *      *      *      *
GTA CAA AGA GAA GAA CGC AAT AAT ATT GCA ACA GCT CAA ACC AGT TTA
CAT GTT TCT CTT CTT GCG TTA TTA TAA CGT TGT CGA GTT TGG TCA AAT
Val Gln Arg Glu Glu Arg Asn Asn Ile Ala Thr Ala Gln Thr Ser Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

200     210     220     230     240
      *      *      *      *      *
GGC ACG ATT CAA ACC GCT ATT GGC TTA ACT GAG CGT GGC ATT GTG TTA
CCG TGC TAA GTT TGG CGA TAA CCG AAT TGA CTC GCA CCG TAA CAC AAT
Gly Thr Ile Gln Thr Ala Ile Gly Leu Thr Glu Arg Gly Ile Val Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-1

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      250      260      270      280
      *      *      *      *      *      *      *      *
TCC GCT CCA CAA ATT GAT AAA TTG CTA CAG AAA ACT AAA GCA GGC CAA
AGG CGA GGT GTT TAA CTA TTT AAC GAT GTC TTT TGA TTT CGT CCG GTT
Ser Ala Pro Gln Ile Asp Lys Leu Leu Gln Lys Thr Lys Ala Gly Gln>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

290      300      310      320      330
      *      *      *      *      *      *      *      *
GCA TTA GGT TCT GCC GAA AGC ATT GTA CAA AAT GCA AAT AAA GCC AAA
CGT AAT CCA AGA CGG CTT TCG TAA CAT GTT TTA CGT TTA TTT CGG TTT
Ala Leu Gly Ser Ala Glu Ser Ile Val Gln Asn Ala Asn Lys Ala Lys>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      340      350      360      370      380
      *      *      *      *      *      *      *      *
ACT GTA TTA TCT GGC ATT CAA TCT ATT TTA GGC TCA GTA TTG GCT GGA
TGA CAT AAT AGA CCG TAA GTT AGA TAA AAT CCG AGT CAT AAC CGA CCT
Thr Val Leu Ser Gly Ile Gln Ser Ile Leu Gly Ser Val Leu Ala Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      390      400      410      420      430
      *      *      *      *      *      *      *      *
ATG GAT TTA GAT GAG GCC TTA CAG AAT AAC AGC AAC CAA CAT GCT CTT
TAC CTA AAT CTA CTC CGG AAT GTC TTA TTG TCG TTG GTT GTA CGA GAA
Met Asp Leu Asp Glu Ala Leu Gln Asn Asn Ser Asn Gln His Ala Leu>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      440      450      460      470      480
      *      *      *      *      *      *      *      *
GCT AAA GCT GGC TTG GAG CTA ACA AAT TCA TTA ATT GAA AAT ATT GCT
CGA TTT CGA CCG AAC CTC GAT TGT TTA AGT AAT TAA CTT TTA TAA CGA
Ala Lys Ala Gly Leu Glu Leu Thr Asn Ser Leu Ile Glu Asn Ile Ala>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      490      500      510      520
      *      *      *      *      *      *      *      *
AAT TCA GTA AAA ACA CTT GAC GAA TTN -GT GAG CAA ATT AGT CAA TTT
TTA AGT CAT TTT TGT GAA CTG CTT AAN -CA CTC GTT TAA TCA GTT AAA
Asn Ser Val Lys Thr Leu Asp Glu Xxx Cys Glu Gln Ile Ser Gln Phe>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

530      540      550      560      570
      *      *      *      *      *      *      *      *
GGT TCA AAA CTA CAA AAT ATC AAA GGC TTA GGG ACT TTA GGA GAC AAA
CCA AGT TTT GAT GTT TTA TAG TTT CCG AAT CCC TGA AAT CCT CTG TTT
Gly Ser Lys Leu Gln Asn Ile Lys Gly Leu Gly Thr Leu Gly Asp Lys>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-2

580 590 600 610 620
 * * * * *
 CTC AAA AAT ATC GGT GGA CTT GAT AAA GCT GGC CTT GGT TTA GAT GTT
 GAG TTT TTA TAG CCA CCT GAA CTA TTT CGA CCG GAA CCA AAT CTA CAA
 Leu Lys Asn Ile Gly Gly Leu Asp Lys Ala Gly Leu Gly Leu Asp Val>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

630 640 650 660 670
 * * * * *
 ATC TCA GGG CTA TTA TCG GGC GCA ACA GCT GCA CTT GTA CTT GCA GAT
 TAG AGT CCC GAT AAT AGC CCG CGT TGT CGA CGT GAA CAT GAA CGT CTA
 Ile Ser Gly Leu Leu Ser Gly Ala Thr Ala Ala Leu Val Leu Ala Asp>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

680 690 700 710 720
 * * * * *
 AAA AAT GCT TCA ACA GCT AAA AAA GTG GGT GCG GGT TTT GAA TTG GCA
 TTT TTA CGA AGT TGT CGA TTT TTT CAC CCA CGC CCA AAA CTT AAC CGT
 Lys Asn Ala Ser Thr Ala Lys Lys Val Gly Ala Gly Phe Glu Leu Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

730 740 750 760
 * * * * *
 AAC CAA GTT GTT GGT AAT ATT ACC AAA GCC GTT TCT TCT TAC ATT TTA
 TTG GTT CAA CAA CCA TTA TAA TGG TTT CGG CAA AGA AGA ATG TAA AAT
 Asn Gln Val Val Gly Asn Ile Thr Lys Ala Val Ser Ser Tyr Ile Leu>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

770 780 790 800 810
 * * * * *
 GCC CAA CGT GTT GCA GCA GGT TTA TCT TCA ACT GGG CCT GTG GCT GCT
 CGG GTT GCA CAA CGT CGT CCA AAT AGA AGT TGA CCC GGA CAC CGA CGA
 Ala Gln Arg Val Ala Ala Gly Leu Ser Ser Thr Gly Pro Val Ala Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

820 830 840 850 860
 * * * * *
 TTA ATT GCT TCT ACT GTT TCT CTT GCG ATT AGC CCA TTA GCA TTT GCC
 AAT TAA CGA AGA TGA CAA AGA GAA CGC TAA TCG GGT AAT CGT AAA CGG
 Leu Ile Ala Ser Thr Val Ser Leu Ala Ile Ser Pro Leu Ala Phe Ala>
 ___b___b___ RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b___b___b___>

Figure 10-3

00976566-112497

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      870          880          890          900          910
*      *          *      *          *      *          *      *
GGT ATT GCC GAT AAA TTT AAT CAT GCA AAA AGT TTA GAG AGT TAT GCC
CCA TAA CGG CTA TTT AAA TTA GTA CGT TTT TCA AAT CTC TCA ATA CGG
Gly Ile Ala Asp Lys Phe Asn His Ala Lys Ser Leu Glu Ser Tyr Ala>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      920          930          940          950          960
*      *          *      *          *      *          *      *
GAA CGC TTT AAA AAA TTA GGC TAT GAC GGA GAT AAT TTA TTA GCA GAA
CTT GCG AAA TTT TTT AAT CCG ATA CTG CCT CTA TTA AAT AAT CGT CTT
Glu Arg Phe Lys Lys Leu Gly Tyr Asp Gly Asp Asn Leu Leu Ala Glu>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      970          980          990          1000
*      *          *      *          *      *          *      *
TAT CAG CGG GGA ACA GGG ACT ATT GAT GCA TCG GTT ACT GCA ATT AAT
ATA GTC GCC CCT TGT CCC TGA TAA CTA CGT AGC CAA TGA CGT TAA TTA
Tyr Gln Arg Gly Thr Gly Thr Ile Asp Ala Ser Val Thr Ala Ile Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1010          1020          1030          1040          1050
*      *          *      *          *      *          *      *
ACC GCA TTG GCC GCT ATT GCT GGT GGT GTG TCT GCT GCT GCA GCC GGC
TGG CGT AAC CGG CGA TAA CGA CCA CCA CAC AGA CGA CGA CGT CGG CCG
Thr Ala Leu Ala Ala Ile Ala Gly Gly Val Ser Ala Ala Ala Ala Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      1060          1070          1080          1090          1100
*      *          *      *          *      *          *      *
TCG GTT ATT GCT TCA CCG ATT GCC TTA TTA GTA TCT GGG ATT ACC GGT
AGC CAA TAA CGA AGT GGC TAA CGG AAT AAT CAT AGA CCC TAA TGG CCA
Ser Val Ile Ala Ser Pro Ile Ala Leu Leu Val Ser Gly Ile Thr Gly>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      1110          1120          1130          1140          1150
*      *          *      *          *      *          *      *
GTA ATT TCT ACG ATT CTG CAA TAT TCT AAA CAA GCA ATG TTT GAG CAC
CAT TAA AGA TGC TAA GAC GTT ATA AGA TTT GTT CGT TAC AAA CTC GTG
Val Ile Ser Thr Ile Leu Gln Tyr Ser Lys Gln Ala Met Phe Glu His>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      1160          1170          1180          1190          1200
*      *          *      *          *      *          *      *
GTT GCA AAT AAA ATT CAT AAC AAA ATT GTA GAA TGG GAA AAA AAT AAT
CAA CGT TTA TTT TAA GTA TTG TTT TAA CAT CTT ACC CTT TTT TTA TTA
Val Ala Asn Lys Ile His Asn Lys Ile Val Glu Trp Glu Lys Asn Asn>
__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-4

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      1210      1220      1230      1240
      *      *      *      *      *      *      *      *
CAC GGT AAG AAC TAC TTT GAA AAT GGT TAC GAT GCC CGT TAT CTT GCG
GTG CCA TTC TTG ATG AAA CTT TTA CCA ATG CTA CGG GCA ATA GAA CGC
His Gly Lys Asn Tyr Phe Glu Asn Gly Tyr Asp Ala Arg Tyr Leu Ala>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1250      1260      1270      1280      1290
      *      *      *      *      *      *      *      *
AAT TTA CAA GAT AAT ATG AAA TTC TTA CTG AAC TTA AAC AAA GAG TTA
TTA AAT GTT CTA TTA TAC TTT AAG AAT GAC TTG AAT TTG TTT CTC AAT
Asn Leu Gln Asp Asn Met Lys Phe Leu Leu Asn Leu Asn Lys Glu Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1300      1310      1320      1330      1340
      *      *      *      *      *      *      *      *
CAG GCA GAA CGT GTC ATC GCT ATT ACT CAG CAG CAA TGG GAT AAC AAC
GTC CGT CTT GCA CAG TAG CGA TAA TGA GTC GTC GTT ACC CTA TTG TTG
Gln Ala Glu Arg Val Ile Ala Ile Thr Gln Gln Gln Trp Asp Asn Asn>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1350      1360      1370      1380      1390
      *      *      *      *      *      *      *      *
ATT GGT GAT TTA GCT GGT ATT AGC CGT TTA GGT GAA AAA GTC CTT AGT
TAA CCA CTA AAT CGA CCA TAA TCG GCA AAT CCA CTT TTT CAG GAA TCA
Ile Gly Asp Leu Ala Gly Ile Ser Arg Leu Gly Glu Lys Val Leu Ser>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1400      1410      1420      1430      1440
      *      *      *      *      *      *      *      *
GGT AAA GCC TAT GTG GAT GCG TTT GAA GAA GGC AAA CAC ATT AAA GCC
CCA TTT CGG ATA CAC CTA CGC AAA CTT CTT CCG TTT GTG TAA TTT CGG
Gly Lys Ala Tyr Val Asp Ala Phe Glu Glu Gly Lys His Ile Lys Ala>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1450      1460      1470      1480
      *      *      *      *      *      *      *      *
GAT AAA TTA GTA CAG TTG GAT TCG GCA AAC GGT ATT ATT GAT GTG AGT
CTA TTT AAT CAT GTC AAC CTA AGC CGT TTG CCA TAA TAA CTA CAC TCA
Asp Lys Leu Val Gln Leu Asp Ser Ala Asn Gly Ile Ile Asp Val Ser>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

```

Figure 10-5


```

1490      1500      1510      1520      1530
  *      *      *      *      *
AAT TCG GGT AAA GCG AAA ACT CAG CAT ATC TTA TTC AGA ACG CCA TTA
TTA AGC CCA TTT CGC TTT TGA GTC GTA TAG AAT AAG TCT TGC GGT AAT
Asn Ser Gly Lys Ala Lys Thr Gln His Ile Leu Phe Arg Thr Pro Leu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1540      1550      1560      1570      1580
  *      *      *      *      *
TTG ACG CCG GGA ACA GAG CAT CGT GAA CGC GTA CAA ACA GGT AAA TAT
AAC TGC GGC CCT TGT CTC GTA GCA CTT GCG CAT GTT TGT CCA TTT ATA
Leu Thr Pro Gly Thr Glu His Arg Glu Arg Val Gln Thr Gly Lys Tyr>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1590      1600      1610      1620      1630
  *      *      *      *      *
GAA TAT ATT ACC AAG CTC AAT ATT AAC CGT GTA GAT AGC TGG AAA ATT
CTT ATA TAA TGG TTC GAG TTA TAA TTG GCA CAT CTA TCG ACC TTT TAA
Glu Tyr Ile Thr Lys Leu Asn Ile Asn Arg Val Asp Ser Trp Lys Ile>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1640      1650      1660      1670      1680
  *      *      *      *      *
ACA GAT GGT GCA GCA AGT TCT ACC TTT GAT TTA ACT AAC GTT GTT CAG
TGT CTA CCA CGT CGT TCA AGA TGG AAA CTA AAT TGA TTG CAA CAA GTC
Thr Asp Gly Ala Ala Ser Ser Thr Phe Asp Leu Thr Asn Val Val Gln>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1690      1700      1710      1720
  *      *      *      *      *
CGT ATT GGT ATT GAA TTA GAC AAT GCT GGA AAT GTA ACT AAA ACC AAA
GCA TAA CCA TAA CTT AAT CTG TTA CGA CCT TTA CAT TGA TTT TGG TTT
Arg Ile Gly Ile Glu Leu Asp Asn Ala Gly Asn Val Thr Lys Thr Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1730      1740      1750      1760      1770
  *      *      *      *      *
GAA ACA AAA ATT ATT GCC AAA CTT GGT GAA GGT GAT GAC AAC GTA TTT
CTT TGT TTT TAA TAA CGG TTT GAA CCA CTT CCA CTA CTG TTG CAT AAA
Glu Thr Lys Ile Ile Ala Lys Leu Gly Glu Gly Asp Asp Asn Val Phe>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

1780      1790      1800      1810      1820
  *      *      *      *      *
GTT GGT TCT GGT ACG ACG GAA ATT GAT GGC GGT GAA GGT TAC GAC CGA
CAA CCA AGA CCA TGC TGC CTT TAA CTA CCG CCA CTT CCA ATG CTG GCT
Val Gly Ser Gly Thr Thr Glu Ile Asp Gly Gly Glu Gly Tyr Asp Arg>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-6


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      2120      2130      2140      2150      2160
      *      *      *      *      *
TTT AAC GGT GGT GAT GGT GTC GAT ACT ATT GAC GGT AAC GAC GGC AAT
AAA TTG CCA CCA CTA CCA CAG CTA TGA TAA CTG CCA TTG CTG CCG TTA
Phe Asn Gly Gly Asp Gly Val Asp Thr Ile Asp Gly Asn Asp Gly Asn>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2170      2180      2190      2200
      *      *      *      *      *
GAC CGC TTA TTT GGT GGT AAA GGC GAT GAT ATT CTC GAT GGT GGA AAT
CTG GCG AAT AAA CCA CCA TTT CCG CTA CTA TAA GAG CTA CCA CCT TTA
Asp Arg Leu Phe Gly Gly Lys Gly Asp Asp Ile Leu Asp Gly Gly Asn>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2210      2220      2230      2240      2250
      *      *      *      *      *
GGT GAT GAT TTT ATC GAT GGC GGT AAA GGC AAC GAC CTA TTA CAC GGT
CCA CTA CTA AAA TAG CTA CCG CCA TTT CCG TTG CTG GAT AAT GTG CCA
Gly Asp Asp Phe Ile Asp Gly Gly Lys Gly Asn Asp Leu Leu His Gly>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2260      2270      2280      2290      2300
      *      *      *      *      *
GGC AAG GGC GAT GAT ATT TTC GTT CAC CGT AAA GGC GAT GGT AAT GAT
CCG TTC CCG CTA CTA TAA AAG CAA GTG GCA TTT CCG CTA CCA TTA CTA
Gly Lys Gly Asp Asp Ile Phe Val His Arg Lys Gly Asp Gly Asn Asp>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2310      2320      2330      2340      2350
      *      *      *      *      *
ATT ATT ACC GAT TCT GAC GGC AAT GAT AAA TTA TCA TTC TCT GAT TCG
TAA TAA TGG CTA AGA CTG CCG TTA CTA TTT AAT AGT AAG AGA CTA AGC
Ile Ile Thr Asp Ser Asp Gly Asn Asp Lys Leu Ser Phe Ser Asp Ser>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2360      2370      2380      2390      2400
      *      *      *      *      *
AAC TTA AAA GAT TTA ACA TTT GAA AAA GTT AAA CAT AAT CTT GTC ATC
TTG AAT TTT CTA AAT TGT AAA CTT TTT CAA TTT GTA TTA GAA CAG TAG
Asn Leu Lys Asp Leu Thr Phe Glu Lys Val Lys His Asn Leu Val Ile>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

      2410      2420      2430      2440
      *      *      *      *      *
ACG AAT AGC AAA AAA GAG AAA GTG ACC ATT CAA AAC TGG TTC CGA GAG
TGC TTA TCG TTT TTT CTC TTT CAC TGG TAA GTT TTG ACC AAG GCT CTC
Thr Asn Ser Lys Lys Glu Lys Val Thr Ile Gln Asn Trp Phe Arg Glu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-8

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2450      2460      2470      2480      2490
  *      *      *      *      *
GCT GAT TTT GCT AAA GAA GTG CCT AAT TAT AAA GCA ACT AAA GAT GAG
CGA CTA AAA CGA TTT CTT CAC GGA TTA ATA TTT CGT TGA TTT CTA CTC
Ala Asp Phe Ala Lys Glu Val Pro Asn Tyr Lys Ala Thr Lys Asp Glu>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2500      2510      2520      2530      2540
  *      *      *      *      *
AAA ATC GAA GAA ATC ATC GGT CAA AAT GGC GAG CGG ATC ACC TCA AAG
TTT TAG CTT CTT TAG TAG CCA GTT TTA CCG CTC GCC TAG TGG AGT TTC
Lys Ile Glu Glu Ile Ile Gly Gln Asn Gly Glu Arg Ile Thr Ser Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2550      2560      2570      2580      2590
  *      *      *      *      *
CAA GTT GAT GAT CTT ATC GCA AAA GGT AAC GGC AAA ATT ACC CAA GAT
GTT CAA CTA CTA GAA TAG CGT TTT CCA TTG CCG TTT TAA TGG GTT CTA
Gln Val Asp Asp Leu Ile Ala Lys Gly Asn Gly Lys Ile Thr Gln Asp>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2600      2610      2620      2630      2640
  *      *      *      *      *
GAG CTA TCA AAA GTT GTT GAT AAC TAT GAA TTG CTC AAA CAT AGC AAA
CTC GAT AGT TTT CAA CAA CTA TTG ATA CTT AAC GAG TTT GTA TCG TTT
Glu Leu Ser Lys Val Val Asp Asn Tyr Glu Leu Leu Lys His Ser Lys>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2650      2660      2670      2680
  *      *      *      *      *
AAT GTG ACA AAC AGC TTA GAT AAG TTA ATC TCA TCT GTA AGT GCA TTT
TTA CAC TGT TTG TCG AAT CTA TTC AAT TAG AGT AGA CAT TCA CGT AAA
Asn Val Thr Asn Ser Leu Asp Lys Leu Ile Ser Ser Val Ser Ala Phe>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

2690      2700      2710      2720      2730
  *      *      *      *      *
ACC TCG TCT AAT GAT TCG AGA AAT GTA TTA GTG GCT CCA ACT TCA ATG
TGG AGC AGA TTA CTA AGC TCT TTA CAT AAT CAC CGA GGT TGA AGT TAC
Thr Ser Ser Asn Asp Ser Arg Asn Val Leu Val Ala Pro Thr Ser Met>
__b__b__b__RECOMBINANT LEUKOTOXIN PEPTIDE [SPLIT]_b__b__b__>

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Figure 10-9

